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(54) MANUFACTURING FOR MATERIAL OF R-F-B-BASED PERMANENT MAGNET

(57) Abstract:

PURPOSE: To provide magnetic powder with uniform grain distribution effectively, by forming ingot pieces with a given thickness from an R-Fe-B-based molten alloy in a strip-casting method, breaking the ingot naturally in hydrogen occlusion, stabilizing it in dehydrogen treatment, and milling the alloy powder with a given additive of lubrication in a jet mill.

CONSTITUTION: R-Fe-B-based molten alloy is founded into fine pieces with separated construction of 5μm or below from a R-rich phase, along with plate thickness of 0.03 to 10m. By feeding H, gas of 200Torr to 50kg/cm2, collapsed alloy powder is obtained, and dehydrized. A lubricant of 0.02 to 5.0wt.% is added to the raw powder of average grain size of 10 to 500μm, and the powder is finely

ground. After, a mold is filled with the fine powder of average grain size of 1 to 10μm, along with bulk density of 1.4 to 3.5g/cm3, a pulse magnetic field of 10kOe or above is applied instantaneously so that the powder has orientation. Then, molding, sintering and aging steps are carried out. In this way, fine grinding with efficiency is carried out and a magnet with high iHc can be obtained.